Claims:

1. A pharmaceutical composition for use in decreasing DNA damage comprising an effective daily dose of about 0.1 to 20 mg lutein, and at least one of the group consisting of beta-carotene and lycopene in amounts sufficient to act synergistically with lutein.

2. The pharmaceutical composition of claim 1, wherein the composition further comprises at least one of about 0.1 mg to 20 mg beta-carotene or about 0.1 to 20 mg lycopene.

3. The pharmaceutical composition of claim 1, wherein the composition further comprises a lipophilic component.

4. The pharmaceutical composition of claim 1, wherein the composition further comprises a carotenoid-containing dry powder in the form of a multicore structure in which at least two cores of a multicore structure comprise one or more different carotenoids of the group consisting of substantially purified lutein, beta-carotene, and lycopene.

5. The pharmaceutical composition of claim 4, wherein the carotenoid-containing dry powder is formed into at least one of drink preparations, tablets, sugar coated tablets, hard gelatin capsules, soft gelatin capsules, and cellulose capsules.

6. A nutritional composition suitable for use in protecting against a free radical associated disorder, comprising a daily dose of at least two carotenoids selected from the group consisting of substantially purified lutein, beta-carotene, and lycopene.

7. The nutritional composition of claim 6, wherein the daily dose of at least two carotenoids is selected from about 0.1% to 50% by weight beta-carotene, about 0.1% to 50% by weight lycopene, and about 0.1% to 50% by weight lutein.

8. A method of decreasing oxidative damage in a subject comprising: administering a synergistic combination of carotenoids to the subject, wherein the synergistic combination comprises at least two carotenoids selected from the group consisting of lutein, beta-carotene, and lycopene.

9. The method of claim 8, wherein the synergistic combination of carotenoids is selected from the group consisting of a daily unit dose of about 0.1 mg to 20 mg beta-carotene, about 0.1 to 20 mg lycopene, and about 0.1 to 20 mg lutein to the subject.

10. The method of claim 8, wherein the method comprises administering about 0.5 mg to 10 mg beta-carotene, about 0.5 to 10 mg lycopene, and about 0.5 to 10 mg lutein to the subject.

11. The method of claim 8, wherein the synergistic combination of carotenoids is selected from the group consisting of a daily unit dose of about 1 part of beta-carotene, 0.02 to 20 parts of lycopene and 0.02 to 20 parts of lutein.

12. The method of claim 8, wherein the synergistic combination of carotenoids is selected from the group consisting of a daily unit dose of about 1 part of beta-carotene, 0.1 to 2 parts of lycopene and 0.1 to 2 parts of lutein.

13. The method of claim 8, wherein the method further comprises administering a lipophilic component, such that antioxidant capacity in the aqueous and lipid compartments of plasma is increased.

14. The method of claim 8, wherein the method further comprises administering a carotenoid-containing dry powder in the form of a multicore structure in which at least two cores of a multicore structure comprise one or more different carotenoids of the group consisting of substantially purified lutein, beta-carotene, and lycopene.

15. The method of claim 14, wherein the method comprises administering the carotenoid-containing dry powder in a form selected from the group consisting of drink preparations, tablets, sugar coated tablets, hard gelatin capsules, soft gelatin capsules, and cellulose capsules.

16. A method of reducing effects of aging in a subject comprising: administering a synergistic combination of carotenoids to the subject, wherein the synergistic combination comprises at least two of the group consisting of lutein, beta-carotene, and lycopene, whereby DNA damage in the subject is decreased thereby reducing the effects of aging.

17. The method of claim 16, wherein the synergistic combination of carotenoids is selected from the group consisting of a daily unit dose of about 0.1 mg to 20 mg beta-carotene, about 0.1 to 20 mg lycopene, and about 0.1 to 20 mg lutein to the subject.

18. The method of claim 16, wherein the method comprises administering about 0.5 mg to 10 mg beta-carotene, about 0.5 to 10 mg lycopene, and about 0.5 to 10 mg lutein to the subject.

19. The method of claim 16, wherein the method comprises a carotenoid-containing dry powder in the form of a multicore structure in which at least two cores of a multicore structure comprise one or more different carotenoids of the group consisting of substantially purified lutein, beta-carotene, and lycopene.

20. The method of claim 19, wherein the method comprises administering the carotenoid-containing dry powder in a form selected from the group consisting of drink preparations, tablets, sugar coated tablets, hard gelatin capsules, soft gelatin capsules, and cellulose capsules.